Amendments to the Specification:

Please replace the paragraphs from page 2, line 24 to page 3, line 29 with the following amended paragraphs:

The present invention provides a method of estimating the spreading factor of data in a channel in a spread spectrum radio communication system comprising a transmitter and a receiver, wherein the transmitter transmits a data unit at one of a plurality of spreading factors over a data channel and transmits in parallel over a control channel a control unit comprising information for decoding said data unit~~,~~.

~~the~~ The method ~~comprising the~~includes steps of~~:~~

decoding an initial potion of the control unit~~;~~,

decoding an initial portion of the data unit at an assumed one of the plurality of spreading factors~~;~~, and

calculating the received power of the initial portions of the control unit and the data unit to make an estimate of the spreading factor used to transmit the data unit. This situation is illustrated in ~~Figure~~ Fig. 1 in the downlink direction between the base station 10a and the mobile station 14a. The data channel is ~~labelled~~ labeled DPDCH and the control channel is ~~labelled~~ labeled DPCCH ~~is labelled~~.

~~The present invention also provides a method of estimating the spreading factor of data in a channel in a spread spectrum radio communication system comprising a transmitter and a receiver, wherein the transmitter transmits a data unit at one of a plurality of spreading factors over a data channel and transmits in parallel over a control channel a control unit comprising information for decoding the data unit,~~

~~the method comprising the steps of:~~

~~decoding an initial potion of the control unit;~~

~~decoding an initial portion of the data unit at an assumed one of the plurality of spreading factors; and~~

~~calculating the received power of the initial portions of the control unit and the data unit to make an estimate of the spreading factor used to transmit the data unit.~~

Please replace the paragraph starting at page 3, line 26 with the following amended paragraph:

By estimating the correct spreading factor used to transmit the data unit based on decoding only on an initial portion of the control unit and the data unit, the data unit can thereafter be properly decoded. Provision for the buffering of a whole data unit need not be made. It is also an advantage that, for the control channel, the transmission power need not be so high nor coding so powerful, because the information for decoding the data unit is not the only indicator of the spreading factor used to transmit the data unit.

Please replace the paragraph starting at page 8, line 13 with the following amended paragraph:

The data from each baseband processor 32, 34 is fed to a spreading modulation element 36. Within the spreading modulation element 36, the data for the ~~DPDCH~~ DPCCH is spread by PN code Cd in a spreading element 38 and scaled by a factor Ad in scaling element 40 to give a signal I, and the data for DPDCH is spread by PN code Cc in spreading element 42 and scaled in scaling unit 44 by a factor Ac to give a signal Q. The codes Cd and Cc are orthogonal variable spreading factor codes. The signals I, Q are then fed to a quadrature modulator (QPSK) 46 to produce a signal I + jQ. This signal is then spread again by a PN scrambling code Cscramb in spreading element 48 which is a complex user-specific scrambling code to give signal R. The codes Cd and Cc are for channelisation.

Please replace the paragraph starting at page 8, line 28 with the following amended paragraph:

Fig. 3 shows the receiver 60 architecture for the receiver of the base station. The receiver 60 comprises an RF section 80 for demodulating the received signals into the I,Q parts. A power estimator unit 75 provides an estimate of the power of I and Q and feeds this information to a baseband processing unit 65. As described below in more detail below, the baseband processing unit of the receiver 60 is able to use the power estimates I and Q to calculate an estimate of the spreading factor/data rate.

Please replace the paragraph starting at page 10, line 17 with the following amended paragraph:

Referring again to FIG. 4, in order to estimate the relationship between the received power of the control channel and the data channel before the spreading factor used to transmit the data channel can be decoded from the control channel DPCCH, the data channel ~~DPCDH~~ DPDCH signal is decoded assuming the lowest of the set of allowed spreading factors. With this assumption, the samples from the first 20 % or so of frame 1 of the data channel ~~DPCDH~~ DPDCH are decoded and averaged to give a power estimate Pda. Over the same interval, the control channel DPCCH is also decoded at its known, fixed spreading factor. The samples decoded from each channel are squared and averaged to give an estimate Pca. The ratio Pda/Pca will correspond more closely to one of P3'/P0', P2'/P0' or P1'/P0' and hence yield an estimate of the corresponding spreading factor. Once an estimate of the spreading factor is so obtained, decoding of the data channel begins at the estimated spreading factor and hence little buffering is needed. In this way, both frames 1 and 2 are decoded. The process is then repeated for data unit 2, and subsequently for data unit 3.

Please replace the paragraph starting at page 11, line 8 with the following amended paragraph:

Because communication between the base station 10a and the mobile station 14a takes place over a multirate data channel DPDCH having a corresponding control channel DPCCH which is transmitted in parallel and carries information about the data on the data channel, this channel architecture can be exploited advantageously in accordance with the described preferred embodiment of the invention to flexibly bundle a variety of user services into the data channel according to the priority of the services and the current data rate supportable by the data channel. For example, if there are four sets of user service data which need to be transmitted, say services 1 to 4 and, for convenience of explanation, the priority of the services is also in numerical order (whereby service 1 is the highest priority and service 4 is the lowest priority), then these services could be transmitted in accordance with the preferred embodiment of the invention as shown in Fig. 6. In Fig. 6, the same data units 1 to 3 of Fig. 4 are considered from a user services perspective. In data unit 1, transmitted with the power P1, where the spreading factor is the lowest and hence the data rate the highest, all services 1 to 4 are being transmitted~~:~~. In data unit 2, which is at a lower power ~~P1~~ P2 and lower data rate, only higher priority services 1 and 2 are transmitted. In data unit 3, which is at the lowest power P2 and lowest data rate (highest spreading factor), only the highest priority service 1 is transmitted. Although for diagrammatic simplicity the services are shown in consecutive, separate time segments, in practice, each service is evenly interleaved over the respective data unit.